NOAA REPORT

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'Storm of the Century' Sets Weather Records: The devastating storm that covered a third of the country with heavy snow last month has upset climate records established a hundred years ago. The "Storm of the Century" struck the Gulf Coast on March 12 and three days later had traveled up the Eastern seaboard to Maine. Every major airport along the way closed, 243 people died, and some three million people were left without electrical power at one time.

This year's storm saw thousands of people isolated by record snowfalls, especially in the mountains of Georgia, North Carolina and Virginia.

NEWS BRIEFS

Mount Mitchell, N.C., was covered with 50 inches of snow, and a howling wind brought snowdrifts as high as 14 feet. More than 100 hikers were rescued from the North Carolina and Tennessee mountains. Record low temperatures for March were set by the storm, with -5 degrees in Elkins, W. Va., and below freezing as far south as Daytona Beach, Fla. The storm also spawned tornadoes and severe weather across Florida, resulting in 27 deaths. Preliminary property damage estimates nationwide exceed $1.5 billion.

New Atlantic Shark Regulations: NMFS has posted its first commercial and sport shark fishing regulations for federal waters in the Atlantic Ocean, Gulf of Mexico and Caribbean. The NMFS program is designed to prevent further declines in shark populations through overfishing and catching sharks for their fins

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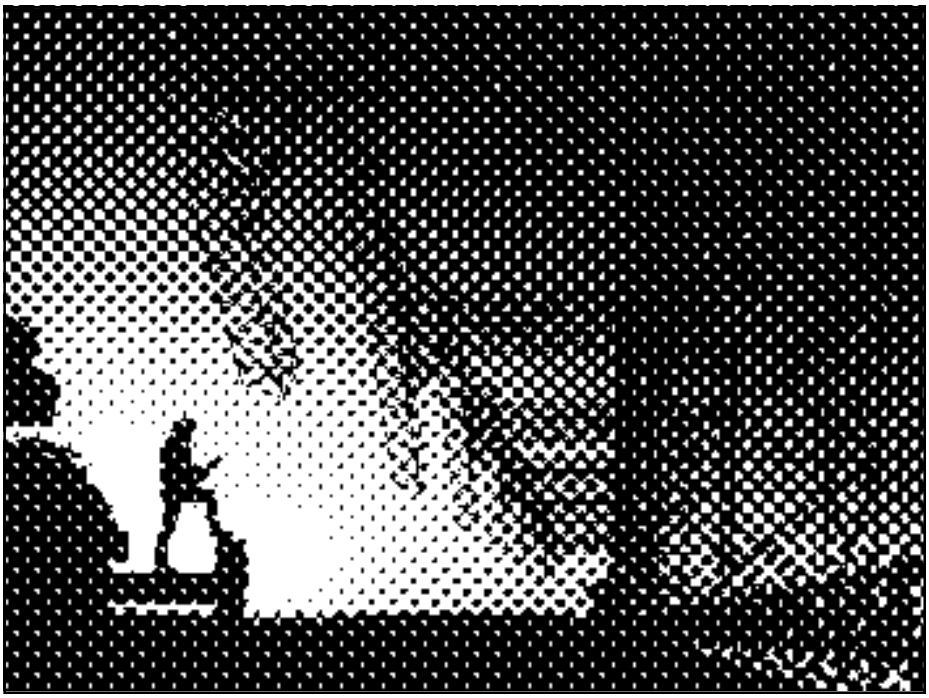

Part of the East Coast over-the-horizon radar antenna array. Such radar, used during the Cold War to guard against potential Soviet attacks, could be put to peacetime, scientific use, a NOAA scientist says.

Use Anti-Soviet Radar to Monitor Ocean Winds: NOAA

Two multi-billion dollar early warning radar systems, originally installed to alert the United States of potential Soviet bombers, could provide a variety of peacetime uses, a NOAA scientist says.

Thomas M. Georges of NOAA's Wave Propagation Laboratory in Boulder, Colo., has experimented with Air Force over-the-horizon radars for the past two years to show how they can monitor wind conditions over huge, data-sparse ocean areas from hundreds of miles away.

Development of the radar system began during the Cold War to provide early warning of Soviet bombers headed for the United States while they were still thousands of miles away. Two years ago the system became operational, just as the Cold War ended and the need for early warning evaporated.

With the air defense mission now obsolete, the two units—one on each coast—became "military dinosaurs," Georges said. The West Coast system constructed on the California-Oregon

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Pinatubo, El Niño Sent '92 to Extremes

The Northern Hemisphere experienced major impacts on its climate in 1992, effects linked to a continuing El Niño and the volcanic eruption of the Philippines' Mount Pinatubo reported a team of scientists from NOAA's Climate Analysis Center (CAC).

In their annual assessment of global climate, CAC researchers said El Niño contributed to temperatures much above normal over western North America during the first part of 1992, while cooling during the latter part of the year was associated with a volcanic aerosol cloud ejected into the upper atmosphere by Mt. Pinatubo in June 1991.

Eastward Shift of Thunderstorms

A major contributor to year-to-year climate variability is the ocean and atmosphere interaction over the equatorial Pacific, or El Niño. El Niño features an eastward shift in thunderstorm activity to the east-central equatorial Pacific that contributes to changes in atmospheric jet streams and weather patterns worldwide.

Researchers now say that ocean and atmosphere interaction has been involved in an unusually long-lived warm episode.

First Prolonged Period Since Mid-1800's

El Niño episodes generally occur every three to five years and last 12-18 months. This is the only time since 1939-1941 that scientists have seen a similar prolonged period of warm episode conditions in a historical record going back to the mid-1800's.

Precipitation extremes during 1992 also were related to El Niño. In North America, El Niño influenced the extremely wet conditions that occurred in the southwestern United States from December 1991 to May 1992. A resurgence of El Niño late in the year produced much needed rain along the drought-stricken West Coast of the U.S., officially ending California's seven year drought.. ❐

(Left to right) Garry Mayer, NMFS Restoration Center; Sen. J. Bennett Johnston (D-LA), Interior Secretary Bruce Babbitt, and La. State Department of Natural Resources Secretary John Ales approve the LaCache Restoration Project at a ceremony last month.

NMFS Joins State, Federal Agencies in Southern Louisiana Coastal Restoration

The recovery of damaged Louisiana coastal marshes began last month following the recent passage of a $1.6 million joint restoration project slated for Terrebonne Parish.

Sponsored by NOAA's National Marine Fisheries Service in cooperation with the state of Louisiana, the LaCache Hydrologic Restoration Project will help fight coastal land loss by closing a number of canals and channels in an area impacted by excessive tidal erosion.

"The project is particularly important to the Nation's living marine resources since Louisiana holds 80 percent of the nation's wetlands," said Garry Mayer, chief of the NOAA Restoration Center. "The LaCache project will minimize tidal scouring in 4,500 acres of the damaged coastal marshes found in the Terrebonne Parish area alone."

Five Agencies to Share Costs

The fisheries service, four other federal agencies and the Louisiana Department of Natural Resources signed cost-sharing agreements in April that approve restoration project funding under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA).

The CWPPRA provides resources to conserve, protect, enhance or restore the nations coastal wetlands. Under the Act, Louisiana will pay 25 percent of the cost of the LaCache project. The project is expected to have a life span of 20 years. ❐

Accuracy Enhanced, Scientist Says

CFC Substitute Aids Ozone Estimates

A chemical compound used as a temporary substitute for ozone-depleting chlorofluorocarbons (CFCs) in refrigeration, air conditioning and foam blowing is helping scientists more accurately estimate the atmospheric lifetime and ozone depletion potential of other proposed substitutes, a NOAA scientist reports.

Compound HCFC-22, a hydrochlorofluorocarbon, is the most extensively used substitute for CFCs, according to NOAA's Stephen A. Montzka. Like compounds they replace, HCFCs can also deplete ozone, but not so severely because they are largely destroyed in the lower atmosphere through interaction with hydroxyl radical (OH), Montzka said.

'Reliable Lifetime Estimates' Possible

"Accurate predictions of atmospheric impacts for different HCFCs depend upon reliable lifetime estimates for these compounds and, therefore, the global distribution of OH," Montzka noted in a paper in the current issue of the scientific journal *Geophysical Research Letters.*

Through analysis of air samples collected from seven remote sampling sites and preparation and use of accurate calibration standards, Montzka and colleagues at NOAA's Climate Monitoring and Diagnostics Laboratory in Boulder, Colo., confirmed that concentrations of HCFC-22 in the atmosphere are substantially lower than previously indicated in some reports in which similar techniques were used.

Reduced Likelihood of Error

Knowing what quantities of HCFCs have been emitted into the atmosphere over a given period of time, and by measuring the actual HCFC concentrations, the extent of OH in the lower atmosphere can be calculated.

Until now, estimates of OH distribution have been based on evaluation of a single industrial compound, methyl chloroform, Montzka said. The information provided by accurate measurements of HCFC-22 will supplement these estimates, reducing the likelihood of error.

This allows more accurate estimates of the lifetimes of other HCFCs, according to the NOAA scientist, who authored the report with R.C. Myers, J.H. Butler, and J.W. Elkins, all of the NOAA laboratory, and S.C. Cummings of the Cooperative Institute for Research in Environmental Sciences, a joint NOAA/University of Colorado research organization. ❐

Phone Numbers Change at NCDC

NOAA's National Climatic Data Center (NCDC) in Asheville, N.C., which maintains over a hundred years of weather data for this country, is changing its telephone numbers. On May 1, the main customer service number for climate data and information will be changed from (704) 259-0682 to (704) 271-4800. All other telephone numbers will become (704) 271-4xxx, where xxx represents the same last three digits of the former telephone number. ❐

Peacetime Use for Defense Radar Seen

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border has been shut down. The East Coast system, in Maine, runs on a part-time schedule.

"The question now is can these and other resources, so expensive that they could only have been developed with defense funds, be rededicated to peacetime missions?" Georges asked in a paper presented last month at an Air Force-sponsored research and development meeting in Bangor, Maine.

He already has demonstrated that both over-the-horizon radar systems can be used for monitoring large ocean areas. As Hurricane Andrew approached southern Florida last fall, ocean surface wind directions created by the hurricane were observed on a radar screen in a control room hundreds of miles away in Maine.

Using over-the-horizon radar, Georges said, commercial aircraft can be tracked as they cross the ocean, where no direct radar tracking is available.

The radar could also be used to give a few days' warning of showers of electrically-charged particles from the sun which can disrupt electric power distribution and radio communications. It also could monitor disturbances in the ionosphere, an electrically charged layer in the upper atmosphere.

"Over-the-horizon radar directly measures sea-surface conditions, which significantly affect the ocean's absorption of greenhouse gases and solar energy, as well as the amount of ocean-atmosphere coupling due to surface friction," Georges said. "These are critical unknowns in the global climate models used to estimate the human contribution to greenhouse warming."

—Bill Brennan ❐

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alone, a practice called "finning." The fins are used in popular shark's fin soup. NMFS prepared its final plan after studying more than 1,200 comments from fishermen, fish dealers and processors, environmental interest groups, state agencies, regional fishery management councils and interested citizens. The service anticipates a closed season this spring for large coastal sharks until July 1. The fishery would then reopen under a second semi-annual quota.

Satellite System Saves Two Near Bahamas: NOAA's satellite system helped save two mariners recently when they activated their Emergency Position Indicating Radio Beacon (EPIRB) 15 miles northwest of Matanilla Shoal, Bahamas. The mariners were underway from Ft. Pierce, Fla., to Walkers Cay, Bahamas, when their vessel became disabled and adrift in the Gulf Stream. They activated their 121 MHz EPIRB; its signal was picked up by a COSPAS-SARSAT satellite. The NOAA control center forwarded the message to a Coast Guard Rescue Coordination Center, which dispatched a HU-25A helicopter from Air Station Miami to the distress location. The Coast Guard diverted "Little Ricky," which towed "Bone Dust" safely to port in Walkers Cay.

NEWS BRIEFS

Buoy Recovered by NWS Staffer: Joe Johnston, official in charge of the NWS office in Astoria, Ore., was instrumental in a quick recovery of a weather buoy that had gone adrift off the mouth of the Columbia River in early March. After discovering that no reports were being received from the buoy, Johnston notified the captain of the Pilot Boat Columbia, stationed not far from where buoy 46029 is moored. This quick notification allowed for a timely recovery of this valuable hardware. ❐

Agencies to Conduct Biological Testing of Reservoir Drawdowns on Salmon

A test to see whether lowering Lower Snake River reservoirs is an effective means of increasing juvenile salmon survival was announced last month by officials of NMFS and the U.S. Army Corps of Engineers.

The concept of lowering the reservoirs below normal ranges has been proposed as a means of increasing water velocity through the reservoirs. In theory, increased water velocity reduces the time needed for juvenile salmon to reach the ocean and increase their survival.

"Conducting biological tests of reservoir drawdown is an essential element in evaluating and making a decision on the use of drawdown for recovery of the listed salmon species," said NMFS Northwest Regional Director Rolland Schmitten, in making the announcement.

In 1992, the Corps conducted a two-reservoir drawdown test when few salmon were present. A study is being initiated this year to gather biological data on the relationship of

California Coast's Blue Whale Population Grew Dramatically Since '70s: NMFS

The estimated population of blue whales found off the California coast has increased dramatically over the last 20 years, NOAA reported last month.

"Our estimates show more blue whales in California coastal waters than were previously thought to be in the entire north Pacific," said Jay Barlow, a NMFS scientist. He is author of a paper presenting the results which was delivered at the International Whaling Commission meeting in Kyoto, Japan in April.

From Hundreds to Thousands

In 1979 and 1980, the fisheries service estimated the number of blue whales off the California coast to be in the hundreds. By 1991, the estimated number had increased to 2,049.

Population estimates were made from sightings of blue and other large baleen whales in California coastal waters during 1979, 1980 and 1991 from aboard NOAA ships *David Starr Jordan* and *McArthur*.

Before the NMFS surveys, the blue whale population was estimated to be 1,600 animals for the entire North Pacific Ocean, based on observations made from Japanese whaling vessels in the 1960s.

"The increase in blue and other baleen whales off California appears to be real. But whether the changes were caused by population growth or by a shift in distribution of the animals cannot be determined without further study," said Barlow. ❐

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Address comments to:
Editor
NOAA Report
NOAA Office of Public Affairs
6013 Herbert C. Hoover Building
Washington, DC 20230
202-482-6090 (voice)
202-482-3154 (fax)
Banyan E-Mail Address:
JerryS@PA@NOAA

Timothy A. Tomastik
Acting Director, Public Affairs
Jerry Slaff ..... *Editor*